TOOL FOR INSTALLING SIDING

CROSS-REFERENCE TO RELATED APPLICATION

The present application claims the benefit of U.S. Provisional Application No. 60/476,529, filed June 5, 2003, which is incorporated herein by reference.

FIELD

The present invention concerns a tool for installing siding, such as on the exterior of a house, and methods for its use.

BACKGROUND

Horizontally-disposed, overlapping siding (known as lap siding or clapboard siding) for installation on the framework of a building structure is well known and in widespread use. Numerous tools and gauges have been design to assist in the installation of siding. One such tool, disclosed in U.S. Patent No. 4,425,714, is adapted to fit over a top transverse edge of a top most previously-installed piece of siding. In use, multiple tools are placed along the top edge of the previously installed piece of siding such that the upper surfaces of the tools form a shelf for supporting another piece of siding in the next higher course in an overlapping manner with respect to the previously-installed piece of siding.

When installing siding, "end gaps" or spaces are created between horizontally adjacent boards within a course of siding, and also between the end of a board and an adjacent surface of the structure, such as a piece of trim to allow for expansion and contraction of the siding. Accurate sizing of end gaps is important to ensure satisfactory building envelope performance.

A conventional technique that is used to create end gaps involves temporarily installing an appropriately sized nail in the framework of the structure at the location where an end gap is to be created and positioning a siding board against the framework with one end abutting the nail. After the siding board is installed, the nail is removed from the framework and the end gap is filled with a filler material, such as caulking. A drawback of this technique is that the nail leaves a hole in the framework and any weather barrier or membrane material covering the

framework. The filler material can eventually fail or deteriorate, making the structure susceptible to moisture intrusion via the holes created by the nails, especially in the areas adjacent to a protrusion, such as a piece of trim, or a fenestration, such as a window or door opening.

Thus, there is a continuing need for new and improved tools for installing siding.

SUMMARY

Disclosed are embodiments of a tool that allows for rapid and accurate installation of siding, such as horizontally-disposed, overlapping siding. The tool, according to one representative embodiment, is adapted to be frictionally retained on a piece of siding that is to be installed, but yet can be easily removed when the piece of siding is secured to the exterior of a building structure.

The tool in this embodiment includes an elongate longitudinal member having top and bottom end portions. A top siding-engaging member for frictionally engaging a top transverse edge of the piece of siding extends from the top end of the longitudinal member. A bottom siding-engaging member for engaging a bottom transverse edge extends from the bottom end portion of the longitudinal member. The top and bottom siding-engaging members are spaced apart from each other a fixed distance slightly less than the height of the piece of siding (i.e., the distance between top and bottom transverse edges of a piece of siding). To install, or mount, the tool on a piece of siding, the tool is typically placed so that it spans the height of the piece of siding. The tool is then pushed onto the piece of siding to cause the top siding-engaging member to frictionally engage a top transverse edge of the piece of siding and the bottom siding-engaging member to frictionally engage a bottom transverse edge of a piece of siding. The frictional engagement between the siding-engaging members and the edges of the piece of siding causes the tool to be retained on the piece of siding, yet allows an installer to easily remove the tool when the piece of siding is secured to a structure.

In particular embodiments, the tool further includes at least one siding-support member extending from the longitudinal member and disposed between the top and bottom siding-engaging members. When the tool is installed on a first piece of siding to be installed, the

siding-support member can be placed on a top transverse edge of a previously-installed, second piece of siding in a lower course so that the first piece of siding is supported generally above the second piece of siding in an overlapping manner.

In certain embodiments, the top and bottom siding-engaging members are configured to engage an end portion of a piece of siding such that the longitudinal member is juxtaposed to an end edge of the piece of siding. Thus, when the tool is installed on an end portion of a piece of siding, the tool serves as a spacer between the end portion of the piece of siding and an adjacent surface on the structure (e.g., the end of a horizontally adjacent piece of siding). The tool thereby automatically creates an end gap between the end portion and the adjacent surface on the structure.

Certain embodiments of the tool are adapted to engage either end portion of a piece of siding. In one such embodiment, the top and bottom siding-engaging members each include respective first and second siding-engaging surfaces. When the tool is installed on a first end portion of a piece of siding, the first siding-engaging surfaces of the top and bottom siding-engaging members frictionally engage the top and bottom transverse edges of the piece of siding. When the tool is installed on a second end portion of the piece of siding, the second siding-engaging surfaces of the top and bottom siding-engaging members frictionally engage the top and bottom transverse edges of the piece of siding.

Certain embodiments of the tool include first and second siding-support members for supporting a piece of siding in a predetermined position for installation. When the tool is mounted on one end portion of a piece of siding to be installed, the first siding-support member supports the piece of siding on a previously-installed piece of siding in a lower course. When the tool is mounted on the opposite end portion of the piece of siding to be installed, the second siding-support member supports the piece of siding on the previously-installed piece of siding.

Additionally, certain embodiments of the tool include first and second gauge surfaces. The first and second gauge surfaces may be spaced apart a distance approximately equal to the desired exposure of the siding being installed. Such embodiments of the tool therefore can be used as an exposure/overlap gauge by positioning the first gauge surface against a bottom transverse edge of a piece of siding being installed and the second gauge surface against a

bottom transverse edge of a previously-installed piece of siding in a lower course.

According to another representative embodiment, a tool for installing siding, is adapted to couple to an end portion of a piece of siding to be installed on a structure such that a surface of the tool is juxtaposed to an end edge of the end portion of the piece of siding. When coupled to the end portion of the piece of siding, the tool serves as a spacer to create an end gap between the end portion and an adjacent surface on the structure. In one embodiment, the tool comprises an elongate body and first and second siding-engaging portions extending from the body. When the tool is installed on an end portion of a piece of siding, the first siding-engaging portion frictionally engages a first transverse edge of the piece of siding and the second siding-engaging portion frictionally engages a second transverse edge of the piece of siding.

According to another representative embodiment, a method for installing siding, such as horizontally-disposed, overlapping siding on a structure, includes coupling a removable siding-installation tool to a first piece of siding such that the tool engages top and bottom transverse edges of the first piece of siding. The tool is then supported on a previously-installed, second piece of siding of a lower course such that the first piece of siding is supported in an overlapping relationship with respect to the second piece of siding. As the first piece of siding is supported by the tool, an installer can secure the first piece of siding to the structure.

According to another representative embodiment, a method for installing siding, such as horizontally-disposed, overlapping siding on a structure, includes securing a removable siding-installation tool to an end portion of a piece of siding that is to be installed on the structure. The piece of siding is then positioned for installation such that the tool abuts an adjacent surface on the structure, thereby creating an end gap between the end portion of the piece of siding and the adjacent surface.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a siding-installation tool according to one embodiment.

FIG. 2 is a front elevation view of the siding-installation tool of FIG. 1.

FIG. 3 is a side elevation view of the siding-installation tool of FIG. 1.

FIG. 4A is a perspective view showing the siding-installation tool of FIG. 1 being used to

install a piece of siding adjacent to an existing piece of trim on a structure.

FIG. 4B is a perspective view similar to FIG. 4A showing the siding-installation tool of FIG. 1 being used to install a piece of siding next to a previously-installed piece of siding in the same course.

FIG. 4C is a front view of the installation process shown in FIG. 4B, illustrating the siding-installation tool being used to create an end gap between the two pieces of siding.

FIG. 5 shows the siding-installation tool of FIG. 1 being used as an overlap/exposure gauge to set the exposure of a previously-installed piece of siding as another piece of siding is being installed above the previously-installed piece of siding.

FIG. 6A is a cross-sectional view of the structure shown in FIG. 4B taken along line 6A-6A of FIG. 4B.

FIG. 6B is a view similar to FIG. 6A showing the siding-installation tool being removed from a piece of siding.

DETAILED DESCRIPTION

As used herein, the singular forms "a," "an," and "the" refer to one or more than one, unless the context clearly dictates otherwise.

As used herein, the term "includes" means "comprises."

As used herein, a group of individual members stated in the alternative includes embodiments relating to a single member of the group or combinations of multiple members. For example, the term "a, b, or c," includes embodiments relating to "a," "b," "c," "a and b," "a and c," "b and c," and "a, b, and c."

Referring first to FIGS. 1-3, there is shown a siding-installation tool 1, according to one embodiment, that may be used to install siding, such as horizontally-disposed, overlapping pieces of siding, on the framework of a structure. The siding-installation tool 1 can be made of any suitable material, such as, but not limited to, metals, alloys, polymers, composite materials, and various other materials. In particular embodiments, the siding-installation tool 1 is made of a tool-grade polymer, because of its strength, durability, low weight, and ease of manufacture.

The tool 1 in the illustrated configuration comprises an elongate main body or

longitudinal portion 10 having an upper, or top end portion 12 and a lower, or bottom end portion 14. A top siding-engaging portion 16 extends from the top end portion 12 for frictionally engaging a top transverse edge of a piece of siding to be installed. A bottom siding-engaging portion 18 extends from the bottom end portion 14 for frictionally engaging a bottom transverse edge of a piece of siding to be installed.

In use, the top and bottom siding-engaging portions 16, 18, respectively, frictionally retain the siding-installation tool 1 on an end portion of a piece of siding to be installed such that an inner surface 24 of the tool is juxtaposed to an end edge of the piece of siding (i.e., the inner surface 24 is generally in a face-to-face relationship with respect to the end edge of a piece of siding). When the tool is coupled to an end portion of a piece of siding in this manner, the tool 1 supports the respective end portion of the piece of siding in a predetermined position for installation and sets the end gap at the supported end of the piece of siding. As best shown in FIG. 2, the illustrated siding-installation tool 1 is generally symmetrical with respect to an imaginary line L extending in the longitudinal direction (i.e., in the direction of the length of the tool 1) so that the tool 1 can be mounted on either end portion of a piece of siding. Uses of the siding-installation tool 1 are described in greater detail below.

As shown in FIGS. 1 and 2, the top siding-engaging portion 16 in the illustrated embodiment is a generally U-shaped member having a top portion 16a and downwardly extending side portions 16b and 16c. The top portion 16a has a siding-engaging surface 20. As best shown in FIG. 2, the siding-engaging surface 20 can be formed with two inclined or angled siding-engaging surfaces 22 and 22'. The bottom siding-engaging portion 18 in the illustrated embodiment includes an extension, or leg portion 26 extending generally downwardly from the bottom end portion 14 of the longitudinal portion 10 and terminates in an end portion 28. The end portion 28 is formed with first and second siding-engaging surfaces 34, 34', extending from opposite sides of the leg portion 26.

The illustrated tool 1 can be mounted on either end portion of a piece of siding. For example, when the tool 1 is installed on the right-hand end portion of a piece of siding 100 (that is, the right-hand end portion when facing the outwardly facing, exposed surface of the piece of siding 100), such as shown in FIGS. 4A, 4B, and 6A, the siding-engaging surface 22' of the top

siding-engaging portion 16 frictionally engages a top transverse edge 102 of the piece of siding 100, and the siding-engaging surface 34 of the bottom siding-engaging portion 18 frictionally engages a bottom transverse edge 104 of the piece of siding. Although not shown in the drawings, when the tool 1 is installed on the opposite end portion of the piece of siding 100 (the left-hand end portion when facing the exposed surface of the piece of siding 100), the siding-engaging surface 22 of the top siding-engaging portion 16 frictionally engages a top transverse edge 102 of the piece of siding, and the siding-engaging surface 34' of the bottom siding-engaging portion 18 frictionally engages a bottom transverse edge 104 of the piece of siding.

The spacing between siding-engaging surfaces 22' and 34 and between siding-engaging surfaces 22 and 34' may be slightly less than the height of a piece of siding so that the tool 1 can be frictionally retained on an end portion of the piece of siding, but yet can be easily removed by an installer after the piece of siding is adequately secured on a structure. In the illustrated embodiment, the tool 1 is shown being used to install siding having top and bottom transverse edges 102 and 104, respectively, that taper from the exposed front face to the rear face of the siding. The siding-engaging surfaces 22, 22', 34, and 34' may be angled to generally correspond to the taper of the top and bottom transverse edges 102, 104 of a piece of such siding to ensure that the siding-engaging surfaces create a gripping force sufficient to retain the tool 1 while the piece of siding is being installed. In other embodiments, however, siding-engaging surface 22 can be co-planar with siding-engaging surface 22' (i.e., siding-engaging surface 20 would be flat), and siding-engaging surface 34 can be co-planar with siding-engaging surface 34', such as for installing siding having a rectangular cross-sectional profile.

As shown in FIG. 3, the longitudinal portion 10 has a thickness A that defines the width of the end gap between an end portion of a piece of siding supported by the tool 1 and an adjacent existing surface on the structure. As further described below, the existing surface can be, for example, an end edge of a horizontally adjacent piece of siding in the same course of siding, a piece of trim or molding, or the casing of a door or window.

Embodiments of the siding-installation tool 1 can also include at least one siding-support portion for supporting a piece of siding to be installed generally above a previously-installed piece of siding in a lower course in an overlapping relationship therewith. As shown in FIGS. 1-

3, for example, the illustrated siding-installation tool 1 includes first and second siding-support portions 36, 36' extending generally laterally from the bottom end portion 14 of the longitudinal portion 10. Each siding-support portion 36, 36' is formed with a respective support arm 38, 38'. As shown in FIG. 6A, when the siding-installation tool 1 is installed on the right-hand end portion of a piece of siding 100, support arm 38 is supported on a top transverse edge 122 of a previously-installed piece of siding 120 in a lower course. In a similar manner, when the siding-installation tool 1 is installed on the left-hand end portion of the piece of siding 100, support arm 38' is supported on the top transverse edge 122 of the previously-installed piece of siding 120.

As shown in FIG. 2, the lower surfaces of support arms 38, 38' are spaced from the siding-support surfaces 34, 34' a distance B in the longitudinal direction. The distance B defines the amount of overlap between a piece of siding being installed and a previously-installed piece of siding in a lower course. In addition, the support arms 38, 38' are laterally spaced from their corresponding siding-engaging surfaces 34, 34' a distance C that is greater than the thickness of the siding to permit removal of the siding-installation tool 1. More specifically, and referring to FIG. 6B, after a piece of siding 100 is secured to a structure 200, but prior to applying nails (or other suitable fasteners) to the end portion that is supported by the tool 1, the tool 1 is removed from the piece of siding 100 by first pulling the end portion 28 generally away from the piece of siding, as indicated by arrow P, until the siding-engaging surface 34 clear the bottom transverse edge 104 of the piece of siding. Once the siding-engaging surface 34 is clear of the bottom transverse edge 104, the tool 1 can be removed by sliding the tool 1 generally upwardly, as indicated by arrow R, until support arm 38 clears the top transverse edge 102 of the piece of siding. Thereafter, the tool can be re-used to install the next piece of siding.

Embodiments of the siding-installation tool 1 also can be configured for use as a siding-exposure/overlap gauge to assist in maintaining the proper overlap of a piece of siding that is being installed. According to one embodiment, the support arms 38, 38' can be formed with respective gauge surfaces 40 and 40' that are spaced from the top surface of top portion 16a (which serves as another gauge surface) by a distance E (FIG. 3) that is approximately equal to the exposure of each piece of siding when installed. FIG. 5 illustrates the use of the siding-installation tool 1 as an exposure/overlap gauge. As shown, as a piece of siding 100 is being

installed above a previously-installed piece of siding 120 in a lower course, the tool is held against the previously-installed piece of siding 120 such that the gauge surfaces 40, 40' are underneath its bottom transverse edge 124 and the bottom transverse edge 104 of the piece of siding 100 is supported on the top portion 16a , thereby simultaneously setting the proper exposure E of the previously-installed piece of siding 120 and the overlap of the piece of siding 100 that is being installed.

According to one embodiment of the disclosed methods for installing siding on a structure, the first course of siding is first installed on the structure. In some installations, a starter strip can be installed prior to the first course of siding, as known in the art. After the first course of siding is installed, a siding-installation tool 1 is secured to an end portion of a piece of siding to be installed in the second course. In the example shown in FIGS. 4B, 4C, and 6A, the tool 1 is secured to the right-hand end portion of a piece of siding 100 that is to be installed over a previously-installed piece of siding 120 in a lower course.

With the tool 1 secured to the right-hand end portion of the piece of siding 100, an installer positions the piece of siding 100 against the structure 200 such that the support arm 38 is supported on the top transverse edge 122 of the previously-installed piece of siding 120 of the lower course and the longitudinal portion 10 of the tool 1 abuts an adjacent surface on the structure 200. The adjacent surface can be the end edge of a horizontally adjacent piece of siding 300 in the same course (FIGS. 4B and 4C), a piece of molding or trim 206 on the structure (FIG. 4A), the casing around a window or door, or some other surface on the structure 200. In any event, the tool 1 automatically sets the end gap between the right-hand end portion of the piece of siding 100 and the adjacent surface. After each piece of siding is installed on the structure, the end gaps in each course of siding can be filled with a suitable filler material, such as caulking, as known in the art.

To ensure that the overlap of the piece of siding 100 (and therefore the exposure of the previously-installed piece of siding 120) is substantially uniform across the entire length of the piece of siding, the overlap can be set at a position spaced from the right-hand end portion of the piece of siding (e.g., at the middle of the length of the piece of siding 100) using a second siding-installation tool 1 in the manner illustrated in FIG. 5 (i.e., using a separate tool 1 as an

overlap/exposure gauge).

While the piece of siding 100 is supported by the tool 1 on the previously-installed piece of siding 120, the installer secures the piece of siding 100 to the structure 200 using nails 202 (or other suitable fasteners). In one approach, for example, the installer starts nailing at about the middle of the length of the piece of siding 100 and gradually works toward the left-hand end portion of the piece of siding 100. After two or more nails 202 are hammered into the piece of siding 100, the tool 1 can be removed from the piece of siding 100 in the manner described above and illustrated in FIG. 6B. The tool 1 can be used later to install the next piece of siding. After securing the left half of the piece of siding 100 to the structure 200, the installer can then secure the right half of the piece of siding to the structure 200, starting at the middle of the length and gradually working toward the right-hand end portion, for example. This process is then repeated for each additional piece of siding installed on the structure 200. In alternative embodiments, the manner in which the nails or other fasteners are installed can be modified as desired. For example, the piece of siding 100 can be secured to the structure 200 by first nailing the left-hand end portion of the piece of siding and gradually working toward the right-hand end portion.

The foregoing process of installing siding can be accomplished by only one installer. In addition, as noted above, the tool 1 can be secured to either the right-hand end portion, the left-hand end portion, or both end portions of a piece of siding. Accordingly, the foregoing process can just as easily be accomplished by installing the siding-installation tool 1 on the left-hand end portion of the piece of siding 100, rather than on the right-hand end portion, as described above. In another approach, a respective siding-installation tool 1 can be secured to both end portions of the piece of siding 100 to support both end portions on the previously-installed piece of siding 120.

While the illustrated siding-installation tool 1 is shown as being configured for use on either end portion of a piece of siding, this is not a requirement. In other embodiments, for example, a siding-installation tool can be adapted to be installed on the right-hand end portion of a piece of siding. Such a tool can have siding-engaging surface 22', siding-engaging surface 34, and siding-support portion 36, while siding-engaging surface 22, siding-engaging surface 34'

and siding-support portion 36' can be optional. Similarly, a siding-installation tool adapted to engage the left-hand end portion of a piece of siding can have siding-engaging surface 22, siding-engaging surface 34', and siding-support portion 36', while siding-engaging surface 22', siding-engaging surface 34 and siding-support portion 36 can be optional.

The present invention has been shown in the described embodiments for illustrative purposes only. The present invention may be subject to many modifications and changes without departing from the spirit or essential characteristics thereof. I therefore claim as my invention all such modifications as come within the spirit and scope of the following claims.